

Commonwealth of Kentucky
Division for Air Quality

Permit Statement Of Basis

Conditional Major Draft Permit No. F-06-050

Federal Bureau of Prisons, USP Big Sandy
Inez, Kentucky 41224

October 18, 2006

ESMAIL HASSANPOUR, REVIEWER

Source ID #: 21-159-00025

Source AI #: 40419

Activity ID #: AEP20060001

Source Description:

The Division received a renewal application for the existing permit F-02-013 Revision 1, for Federal Bureau of Prisons, USP Big Sandy on July 27, 2006. The Federal Bureau of Prisons, USP Big Sandy consists of the following emission points (EP): three (3) 17.9 mmBTU/hr each, gas/oil fired hot water boilers (EP-01-03), one (1) 1.5 mmBTU/hr gas fired steam boiler (EP-04), three (3) 1.176 mmBTU/hr each, gas/oil fired hot water boilers (EP-05 EP-06, and EP-07), and four diesel fired emergency generators rated at 2550 hp (EP-08), 2935 hp, each (EP-09 & EP-10), and 275 (EP-11). Potential to emit calculations were based on 8760 hours per year for the boiler and 500 hour per year for the diesel generators.

Comments:

Emission Point 01-03: Each 17.9 mmBTU/hr gas fired hot water boiler with #2 fuel oil back up is an indirect heat exchanger and used to heat water for the institution. These were constructed and put into operation approximately 2001. They are used continuously 24 hours per day, 7-days-a-week.

Pursuant to 401 KAR 59:015, Section 4(1)(c), particulate emissions shall not exceed 0.37 lb/mmBTU based on a three-hour average.

Pursuant to 401 KAR 59:015, Section 4(2), emissions shall not exceed 20 percent opacity based on a six-minute average, except that a maximum of 40% opacity based on a six minute average, shall be permissible for not more than 6 consecutive minutes in any consecutive 60 minutes during cleaning the fire-box or blowing soot.

Pursuant to 401 KAR 59:015, Section 4(c), emissions from an indirect heat exchangers shall not exceed 20 percent opacity based on a six-minute average, except for emissions from an indirect heat exchanger during building a new fire for the period required to bring the boiler up to operating condition provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

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Pursuant to 401 KAR 60:005, incorporating by reference 40 CFR 60, Subpart Dc, sulfur dioxide emissions shall not exceed 0.50 lb/mmBTU.

Emission Point 04: The 1.5mmBTU/hr gas fired steam boiler is an indirect heat exchanger and used to provide steam for the institution. This was constructed and put into operation approximately 2001.

Pursuant to 401 KAR 59:015, Section 4(1)(c), particulate emissions shall not exceed 0.369 lb/mmBTU based on a three-hour average.

Pursuant to 401 KAR 59:015, Section 5(1)(c) 1, sulfur dioxide emission shall not exceed 1.33 lb/mmBTU based on a twenty-four-hour average while burning natural gas.

Pursuant to 401 KAR 59:015, Section 4(2), emissions shall not exceed 20 percent opacity based on a six-minute average, except that a maximum of 40% opacity based on a six minute average, shall be permissible for not more than 6 consecutive minutes in any consecutive 60 minutes during cleaning the fire-box or blowing soot.

Pursuant to 401 KAR 59:015, Section 4(c), emissions from an indirect heat exchangers shall not exceed 20 percent opacity based on a six-minute average, except for emissions from an indirect heat exchanger during building a new fire for the period required to bring the boiler up to operating condition provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

Emission Point 05--07: Three 1.176mmBTU/hr each, gas fired hot water boilers with #2 fuel oil back up are used to heat water for the institution. These were constructed and put into operation approximately 2001.

Pursuant to 401 KAR 59:015, Section 4(1)(c), particulate emissions shall not exceed 0.37 lb/mmBTU based on a three-hour average.

Pursuant to 401 KAR 59:015, Section 4(2), emissions shall not exceed 20 percent opacity based on a six-minute average, except that a maximum of 40% opacity based on a six minute average, shall be permissible for not more than 6 consecutive minutes in any consecutive 60 minutes during cleaning the fire-box or blowing soot.

Pursuant to 401 KAR 59:015, Section 4(c), emissions from an indirect heat exchangers shall not exceed 20 percent opacity based on a six-minute average, except for emissions from an indirect heat exchanger during building a new fire for the period required to bring the boiler up to operating condition provided the method used is that recommended by the manufacturer and the time does not exceed the manufacturer's recommendations.

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Pursuant to 401 KAR 59:015, Section 5(1)(c) 1., sulfur dioxide emission shall not exceed 1.33 lb/mmBTU based on a twenty-four-hour average.

Emission Point 08: The 2550 hp, #2 fuel oil standby emergency generator is used for a back up source in case of electrical failure. This equipment was constructed and put into operation approximately 2001. These generators are used only in emergency situations and for testing purposes.

Emission Point 09-10: Two (2) 2935 hp, #2 fuel oil standby emergency generators are used for as a back up source in case of electrical failure. This equipment was constructed and put into operation approximately 2001. This generator is used only in emergency situations and for testing purposes.

Emission Point 11: The 275 hp, #2 fuel oil emergency fire pump is used for a back up source in case of water failure. This equipment was constructed and put into operation approximately 2001. This generator is used only in emergency situations and for testing purposes.

EMISSION AND OPERATING CAPS DESCRIPTIONS:

The permittee is limiting source-wide emissions of sulfur dioxide (SO₂) less than 90 tons per year in order to preclude the applicability of 401 KAR 52:020. Sulfur content of the fuel oil shall not exceed 0.5 percent by weight.

CREDIBLE EVIDENCE:

This permit contains provisions, which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.